

IN THE SPECIFICATION:

Add a new heading and paragraph at page 1, after the title insert new section headings and subheadings and amend the specification as follows:

CROSS REFERENCE TO RELATED APPLICATIONS

This application is a national phase application based on PCT/IT2004/000591, filed October 27, 2004, the content of which is incorporated herein by reference and claims priority of PCT/IT2003/000707, filed October 31, 2003, the content of which is incorporated herein by reference.

BACKGROUND OF THE INVENTION

Field of the Invention

Page 1, before line 16, add the following new subheading:

Description of the Related Art

Page 5, before line 7, add the following new section heading:

SUMMARY OF THE INVENTION

Page 6, lines 21-23, delete the paragraph starting with "It is therefore an object of the invention," in its entirety and substitute a new paragraph therefor as follows:

In accordance with the present invention, there is provided an expandable bladder for tyre manufacturing apparatuses, comprising:

at least one first layer of a first elastomer material; and

a second layer of a second elastomer material different from said first elastomer material;

wherein said second layer is at a position radially external to said first layer;

wherein said first and second layers have an undulated interface profile; and

wherein said interface profile defines mechanical-engagement elements between the first and second elastomer materials.

Page 6, lines 25-27, delete the paragraph starting with "It is a further object of the invention," in its entirety and substitute a new paragraph therefor as follows:

There is also provided in accordance with the present invention a method of manufacturing an expandable bladder for tyre manufacturing apparatuses, comprising the steps of:

preparing at least one first elongated element including a first raw elastomer material and at least one second elongated element including a second raw elastomer material having a different composition from that of the first elastomer material;

laying said first elongated element on a forming support, in the form of coils wound up around a geometric axis of said forming support so as to form a first layer of said first elastomer material;

laying said second elongated element on the forming support, in the form of coils wound up around the geometric axis of said forming support so as to form a second layer of said second elastomer material at a radially external position to said first layer;

said first and second layers having an undulated interface profile, wherein said interface profile defines mechanical-engagement elements between the first and second elastomer materials; and

curing said bladder.

Page 6, lines 29-31, delete the paragraph starting with "The inventions also proposes," in its entirety and substitute the new paragraphs therefor as follows:

In another aspect of the present invention, there is provided a process for manufacturing tyres comprising the steps of:

forming on a drum, a carcass structure comprising at least one carcass ply having opposite end flaps in engagement with respective annular reinforcing structures;

inflating at least one expandable bladder in the vicinity of each of said annular reinforcing structures;

shaping the carcass structure into a toroidal conformation to apply an annular belt structure and a tread band to the carcass ply; and

curing the tyre;

wherein each of said expandable bladders comprises:

at least one first layer of a first elastomer material and one second layer of a second elastomer material different from said first elastomer material;

wherein said second layer is at a radially external position to said first layer;

wherein said first and second layers have an undulated interface profile; and

wherein said interface profile defines mechanical-engagement elements between the first and second elastomer materials.

In accordance with the present invention, there is also provided a manufacturing apparatus for tyres of vehicle wheels, comprising:

devices designed to form a carcass structure on a drum, which carcass structure comprises at least one carcass ply having opposite end flaps in engagement with respective annular reinforcing structures;

at least one pair of expandable bladders operatively associated with said drum, each of said expandable bladders being inflatable in the vicinity of one of said annular reinforcing structures;

devices for positioning a belt structure around said carcass structure; and
devices to shape the carcass structure into a toroidal conformation for applying an annular belt structure to the carcass ply;

wherein each of said expandable bladders comprises:
at least one first layer of a first elastomer material and one second layer of a second elastomer material different from said first elastomer material;
wherein said second layer is at a position radially external to said first layer;
wherein said first and second layers have an undulated interface profile; and
wherein said interface profile defines mechanical-engagement elements between the first and second elastomer materials.

Page 7, before line 6, add the following new section heading:

BRIEF DESCRIPTION OF THE DRAWINGS

Page 8, before line 11, add the following new section heading:

DETAILED DESCRIPTION OF THE INVENTION